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PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: EDWIN H. TAYLOR
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
12400 WILSHIRE BOULEVARD
7TH FLOOR
LOS ANGELES, CA 90025

PCT

NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

RECEIVED
SEP 13 1999

(PCT Rule 44.1)

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
LOS ANGELES (day/month/year)

13 SEP 1999

Applicant's or agent's file reference 42390.P4487	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US99/08701	International filing date <i>(day/month/year)</i> 20 APRIL 1999
Applicant INTEL CORPORATION	

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Further action(s): The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in rules 90 bis 1 and 90 bis 3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer THIAN NGUYEN
Facsimile No. (703) 305-3230	Telephone No. (703) 305-3866

Due date 10/13/99 Client Name Intel Corporation
Docket Initial AV
Docket Sup. Initial AV 42390 . P4487PCT PCT
Atty/Initial EHT SKW
Pat/Ser/Reg US99/08701

Description

Deadline to submit amended claims to WIPO/Switzerland for annexation to original claims in publication is 11/13

Due date 11/13/99 Client Name Intel Corporation
Docket Initial AV
Docket Sup. Initial AV 42390 . P4487PCT PCT
Atty/Initial EHT SKW
Pat/Ser/Reg US99/08701

Description

Deadline to submit amended claims to WIPO/Switzerland for annexation to original claims in publication

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Preliminary Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where Applicable, Article 41.

When ? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments ?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How ? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments ?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Office, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 42390.P4487	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US99/08701	International filing date (day/month/year) 20 APRIL 1999	(Earliest) Priority Date (day/month/year) 21 APRIL 1998
Applicant INTEL CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☐ Unity of invention is lacking (See Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.
☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ transcribed by this Authority.
4. With regard to the title,

☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:
5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
 Figure No. 9

☐ as suggested by the applicant.
☐ because the applicant failed to suggest a figure.
☒ because this figure better characterizes the invention.

☐ None of the figures.

9/13/99

Due date

10/13/99

Client Name Intel Corporation

Docket Initial

Dock. Sup. Initial

Atty/Initial

Pat/Ser/Reg US99/08701

42390 . P4487PCT

PCT

EHT SKW

Description

Deadline to submit comments to the abstract of the PCT.

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The abstract is too long (PCT Rule 8.1(b)). The abstract must be less than 150 words, or 200 words when no Figure is to be published.

NEW ABSTRACT

A method for storing received data is disclosed. A storage structure is selected for the data according to the realitive size (z) of the data with respect to a plurality of thresholds including: a minimum number of instances (m), a maximum single instance size (s*g), and an allocation granularity (g). If z is less than a first threshold (920), the data is stored within a multiple instance object structure (922). If z is less than a second threshold (930), the data is stored as a single instance object (932). If z exceeds the second threshold, the data is fragmented and stored among the plurality of blocks of nonvolatile memory (942). If the number of fragments is less than a maximum sequence table size, then a sequence table indicative of the order locations of the data fragments is stored in the nonvolatile memory. If the number of data fragments exceeds the maximum sequence table size (940), then a plurality of sequence table fragments and a group table, indicating the order and the location of the sequence table fragments, are stored in the nonvolatile memory (944).

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/08701

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 12/02

US CL : 711/170, 171, 173

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 711/103, 170, 171, 173

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS USPAT

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P — Y	US 5,860,124 A (MATTHEWS et al) 12 January 1999, Figs 4-8, cols 3-6.	1-4 — 5
Y	US 5,682,497 A (ROBINSON) 28 October 1997, Figs 3,7,8,13, cols 2-9.	5
A,P	US 5,847,995 A (KOBAYASHI et al) 08 December 1998, Figs 1,4,7	1-4
A	US 5,469,390 A (SASAKI et al) 21 November 1995, Abstract, Figs 1,3	1-4
A	US 5,406,529 A (ASANO) 11 April 1995, Figs 3,4	5



Further documents are listed in the continuation of Box C.



See patent family annex.

	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"B"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"A"	document member of the same patent family

Date of the actual completion of the international search

08 JULY 1999

Date of mailing of the international search report

13 SEP 1999

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

THAN NGUYEN

Telephone No. (703) 305-3866

Jani Hill

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/08701

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,737,742 A (ACHIWA et al) 07 April 1998, entire document	5

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: EDWIN H. TAYLOR
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
12400 WILSHIRE BOULEVARD
7TH FLOOR
LOS ANGELES, CA 90025

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of Mailing (day/month/year) 18 JAN 2000	
Applicant's or agent's file reference 42390.P4487	REPLY DUE within TWO months from the above date of mailing
International application No. PCT/US99/08701	International filing date (day/month/year) 20 APRIL 1999
Priority date (day/month/year) 21 APRIL 1998	
International Patent Classification (IPC) or both national classification and IPC IPC(6): G06F 12/02 and US Cl.: 711/170, 171, 173	
Applicant INTEL CORPORATION	

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 21 AUGUST 2000

Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer THAN NGUYEN <i>Joni Hill</i>
Facsimile No. (703) 305-3230	Telephone No. (703) 305-3866

International application No.

I. Basis of the opinion

☒ the international application as originally filed.

[X] the claims, Nos. 1-10 , as originally filed.
 Nos. NONE , as amended under Article 19.
 Nos. NONE , filed with the demand.
 Nos. NONE , filed with the letter of _____

2. The amendments have resulted in the cancellation of:

☒ the description, pages NONE

☒ the claims, Nos. NONE

☒ the drawings, sheets/fig NONE

3. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

Form PCT/IPEA/408 (Box 1) (January 1994)*

WRITTEN OPINION

International application No.

PCT/US99/08701

V. Reasoned statement under Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. STATEMENT

Novelty (N)	Claims <u>6,9,10</u>	YES
	Claims <u>1-5,7,8</u>	NO
Inventive Step (IS)	Claims <u>6,9,10</u>	YES
	Claims <u>1-5,7,8</u>	NO
Industrial Applicability (IA)	Claims <u>1-10</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-5,7,8 lack novelty under PCT Article 33(2) as being anticipated by Chiang et al.

As to claim 1, Chiang discloses the invention as claimed. Chiang teaches a method of storing objects in a nonvolatile memory where a first instance of an object is written to the memory and then a superseding second instance of the object is written to the nonvolatile memory without erasing the first instance (see P. 177 2nd col 2nd paragraph, section 3 and Figure 1; Chiang calls this non-in-place updating).

As to claim 2, Chiang teaches updating status information within the allocated space to reflect that the second instance supersedes first instance (see Section 3, paragraph 3).

As to claim 3, Chiang teaches storing header information in with the block (see Fig. 2).

As to claim 4, Chiang teaches that the nonvolatile memory is a flash memory (see Section 5 1st paragraph).

As to claim 5, Chiang discloses the invention as claimed. Chiang teaches receiving data to be stored in a nonvolatile memory; selecting a storage structure (i.e. segment) to store the data in accordance to information about the size of the data to be stored and free space in the nonvolatile memory, and then storing the data (see Section 3).

As to claim 7,8 it would be appear that the system of Chiang would perform these calculations in determining if the data can be stored in a single segment or must be broken up into fragments and stored on multiple segments.

Claims 6,9,10 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest:

As to claim 6, the prior art does not teach or suggest the (Continued on Supplemental Sheet.)

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

combinations of the claimed method further comprises the step of selecting a multiple instance structure, if $z \leq (g\text{-overhead})/m$, wherein the overhead is an amount of space required as overhead for m instances within the multiple instance structure.

As to claim 9, the prior art does not teach or suggest the combinations of the claimed method further comprises the step of:

storing the data fragments using a sequence table indicative of an order and a location of the data fragments, if a sequence table size does not exceed a maximum sequence table size; and

storing a header for each data fragment and the sequence table, wherein the header is located in a same block as its associated data fragment and sequence table, wherein within a given block the headers are stored contiguously proceeding from a first end to a second end of the given block, wherein objects identified by the headers are stored contiguously proceeding from the second end to a first end of the given block.

As to claim 10, the prior art does not teach or suggest the combinations of the claimed method further comprises the step of:

storing the data fragments using sequence table fragments and a group table, if a sequence table size exceeds the maximum sequence table size, wherein the sequence table fragments are indicative of an order and a location of the data fragments, wherein the group table is indicative of an order and a location of the sequence table fragments; and

storing a header for each data fragment, sequence table fragment, and group table, wherein the header is located in a same block as its associated data fragment, sequence table fragment, and group table, wherein within a given block the headers are stored contiguously proceeding from a first end to a second end of the given block wherein objects identified by the headers are stored contiguously proceeding from the second end to a first end of the given block.

NEW CITATIONS

Chiang et al., "Managing Flash Memory In Personal Communication Devices", SEPTEMBER 1997, See pages 177-182, IEEE.